

REMARKS

Claims 1-22 were previously filed in this application. Pursuant to the Office Actions dated January 26 and May 5, 2005, Applicant has withdrawn claims 21 and 22. Original claims 1-20 are presented herewith. Applicant affirms that no new matter has been added to the application. Applicant hereby requests careful reconsideration of this application in view of the following comments.

RESPONSE TO 35 U.S.C. §103 REJECTIONS

Claims 1-4 and 7-12

Claims 1-4 and 7-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gilmore (US 6,479,738), in view of Gilmore (US 5,756,913). The Examiner states that “Gilmore ‘738 discloses the use of a unison string instrument containing a device for increasing tuning longevity comprising: a coupling positioned and fastened between two or more strings of at least one string unison of said instrument.” The Examiner also states that Gilmore ‘913 discloses a crimping tool “that is capable of installing the coupling that supplies a level of compression sufficient for enabling the strings to oscillate in unison at a desired pitch”, as well as a “unison string instrument that enables the coupled string to oscillate in unison”. Applicant requests removal of the 103(a) rejection since it is believed that the claims define patentably over Gilmore ‘738 and Gilmore ‘913, both singularly and in combination.

Primarily, Applicant asserts that it would be impossible for one skilled in the art to derive a coupling that enables unison strings to oscillate together in unison. In fact, as set forth hereinbelow, both the ‘738 and ‘913 patents expressly teach away from Applicant’s invention. The features of the invention are nonobvious and hence patentable under §103 since claims 1-4

and 7-12 recite novel physical subject matter that explicitly distinguishes Applicant's column from Gilmore '738 and Gilmore '913. Exemplary claim 1 recites as follows:

“A unison stringed instrument containing a device for increasing tuning longevity comprising:

a coupling positioned between two or more strings of at least one string unison of said instrument, said coupling enabling the coupled strings to oscillate in unison.”

Applicant disagrees with the Examiner's statement that Gilmore '738 discloses a unison string instrument containing a device for increasing tuning longevity comprising: a coupling positioned and fastened between two or more strings of at least one string unison of said instrument. **The magnetic pickup 9 of Gilmore '738 affects strings that are independent and unrelated to the primary strings being tuned by the device.** Thus the magnetic pickup of Gilmore '738 is **not intended to be a frequency coupler.** Rather, Gilmore '738 utilizes the pickup merely to position the tuning device in proximity to other primary strings being tuned. As Gilmore '738 states:

“These protrusions or ridges 11 engage with strings **adjacent** to the ones being tuned and ensure that the pickup coils are properly aligned with their respective strings.” (column 2, lines 51-53) (emphasis supplied).

The abstract of Gilmore '738 also defines the magnetic pickup as being distinct and separate from the tuning mechanism within the device:

“A device for tuning a piano that **attaches to adjacent strings** of the piano and positions magnetic pickups over the strings with the magnetic pickups detecting the vibration of the strings without interference with them.” (emphasis supplied).

Critical distinctions between Applicant's coupling device and Gilmore '913 are also apparent. Primarily, Gilmore '913 requires the use of a tuning wrench head 55 as opposed to a coupling. This wrench head is a conventional single string tuning device with multiple ports.

The wrench head receives separate, distinct instructions for tuning each string. Indeed, due to mechanical constraints, the wrench head can only tune one string at a time. It is therefore inappropriate to equate the tuning wrench of Gilmore '913 with the coupling of the present invention. In point of fact, **Gilmore '913 specifically teaches away from the use of a coupling.** In the '913 patent, no actual coupling (i.e., joining different string motions together into a single unified motion) is achieved. Rather, each string retains its own independent pattern of oscillation before, during, and after the tuning process is completed.

As Gilmore '913 states:

“This process is repeated for the note’s other two strings. Then the band-pass filter is tuned just below the correct frequency as stored in memory and the **strings 81 are tuned upward, one at a time**, until each is seen to appear and then disappear from the frequency window.” (column 4, lines 31-35) (emphasis supplied).

Gilmore '738 and Gilmore '913 cannot render Applicant’s claims 1-4 and 7-12 obvious since these patents recite a key functional limitation, namely, the disjointed and independent tuning of each string of a unison. As such, it would not have been obvious to modify the devices of Gilmore '738 and '913 in accordance with **Applicant’s** unitary coupling design, which requires **synchronized tuning of two or more strings of a string unison**, as defined in claims 1-4 and 7-12. Doing so would be entirely counter to the stated intentions and design requirements of Gilmore to achieve independent and disengaged tuning of each string of a unison. For all of these reasons, Applicant respectfully requests withdrawal of this §103 rejection.

Claims 5, 6 and 13-20

Claims 5, 6 and 13-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gilmore (US 6,479,738), in view of Gilmore (US 5,756,913) and Ignatius (US 5,585,579). The Examiner states that Gilmore '738 and '913 do not disclose the use of a shaped piece of metal; whereas Ignatius discloses the use of a shaped piece of metal with an open curved band such that the band compresses when placed over two adjacent strings, whereby opposing forces on the strings limit the frequencies.

Primarily, Applicant maintains that this rejection fails for the reasons stated above in the §103(a) rejection over Gilmore '738 and '913. The stated intentions and design requirements of Gilmore '738 and '913 are to achieve independent and disengaged tuning of each string of a unison stringed instrument. In direct contrast thereto, Applicant's invention employs a frequency coupler to simultaneously tune two or more strings of a unison, enabling the coupled strings to oscillate in unison. This is the benchmark teaching of Applicant's invention.

The Examiner contends that Ignatius teaches the use of a shaped piece of metal, as disclosed in column 6, lines 35-40 of the '579 patent, which recites:

"In the production there is a[n] especially advantageous possibility of application for elements ZM2 and ZM3 in the form of thin layers consisting of a material of high density, as which heavy metals and their alloys, particularly noble metals also, fall into consideration."

Reliance on this text to support the Examiner's position is improper. **Ignatius is merely describing the use of metal foil for the purpose of mass loading specific regions of a plate-shaped vibration element.** Aside from Ignatius' use of the word "metals", the foregoing text bears no relation to Applicant's coupling device, which employs frequency coupling to produce unison tuning. It is inappropriate to equate Ignatius' extraneous reference to "metals" to the

coupling of the present invention. The term “metals” as used by Ignatius must be interpreted in the context of the above-referenced passage. The text reveals that the use of the term by Applicant and Ignatius is not analogous. As such, the passage (column 6, lines 35-40) does not stand for the proposition for which it is cited by the Examiner. *See, e.g. Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988) (“[w]here prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself ...”). In view of the foregoing, it is respectfully submitted that Applicant’s claims 5, 6 and 13-20 are not properly rejectable over Ignatius.

The Examiner further asserts that Ignatius discloses a clip that provides opposing forces on strings, thereby limiting the frequencies thereof. In support of this proposition, the Examiner cites column 3, lines 60-65 of the ‘579 patent, which states:

“In FIG. 1 there is shown a stiffening rib in the form of a longitudinal extending vibration element SE connected in a shear-resistant manner with a resonant floor RB. Such an element can be widely used, e.g. in the form of a bass beam of a kind known per se. Besides its static bearing function in reinforcing the resonant cover against the pressure exerted thereon by the string tension ...”

In this passage, Ignatius describes a specialized reinforcing rib attached to the underside of stringed instrument soundboards. The pressure referred to is that of “downbearing” or force against the soundboard which results from angular deflection of the tensioned strings. **This connection cannot be considered a “coupling” since each string within this configuration is permitted to oscillate independently from the others**, similar to traditional stringed instruments.

Stated otherwise, this reference teaches the use of varied dimensions within resonant bodies for the purpose of improved sound transmission. **Similar to the Gilmore references,**

however, **Ignatius does not employ the use of frequency coupling to produce unison tuning**, as required by Applicant's claims 5, 6 and 13-20. To do so would serve no legitimate functional purpose. In fact, such adaptation would destroy the operability of Ignatius' invention. Accordingly, Applicant respectfully requests withdrawal of this §103 rejection.

CONCLUSION

Applicant's invention reveals a new and unexpected principle of operation that is not taught, disclosed or in any way suggested by Gilmore '738, Gilmore '913 and Ignatius, or any combination thereof. The novel features of Applicant's invention which effect this new principle of operation are clearly recited in Applicant's claims 1-20. Therefore, Applicant submits that claims 1-20 define patentably over the prior art and should be indicated allowed.

Applicant believes that all of the present claims are in condition for allowance. Accordingly, entry and careful consideration of this Response and an early indication of allowance is hereby requested. If the Examiner believes there is any issue which could be resolved by a telephone conference or a personal interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Date: 8/3/05

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